

comonomer is selected from the group consisting of β -pinene, 5-ethylidene-2-norbornene, methylene cyclohexane and methylenecyclopentane;

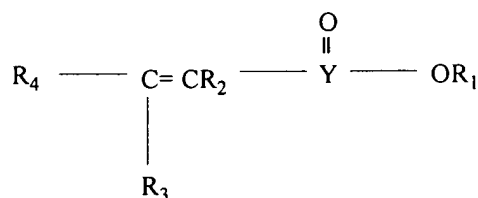
(ii) dispersing said formulation in an aqueous medium.

9. (Amended) A method of dispersing a solid active water-insoluble agrochemical principal in an aqueous solution comprising the following steps:

(i) providing a formulation comprising at least one finely divided solid active water-insoluble agrochemical principal and at least one dispersant comprising a water soluble copolymer wherein said copolymer comprises a residue of a first comonomer and a residue of a second comonomer, wherein said first comonomer is an α,β -unsaturated oxyacid or anhydride and said second comonomer is an olefin having at least one polymerizable double bond and wherein at least one of said first comonomer and said second comonomer is substituted, wherein the substituents for said first comonomer are selected from the group consisting of esters, amides, thioesters and other functional groups derived from reaction with nucleophilic reagents and wherein the substituents for the second comonomer are selected from the group consisting of epoxides; sulfonates; esters; amides; and optionally substituted pendent aromatic and heteroaromatic groups wherein said optional substituents are selected from the group consisting of sulfonates, nitrates, phosphates and other substituents derived from reaction with electrophilic reagents; with the proviso that when the second comonomer is sulphonated styrene or sulphonated isobutylene, the first comonomer is substituted;

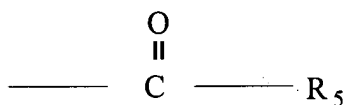
(ii) dispersing said formulation in an aqueous medium.

15. (Amended) A method according to claim 9 wherein the first comonomer is of formula I



I

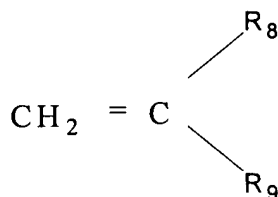
wherein R₁ is a metal, quaternary ammonium, phosphonium or sulphonium cation, R₂ is hydrogen, C₁ to C₄ alkyl or CH₂CO₂H, Y is a carbon atom, the group O=S, or the group POR where R is a hydrogen atom or alkyl radical having from 1 to 10 carbon atoms (or carboxylated such radical), R₃ is hydrogen and R₄ is hydrogen, an alkyl radical or a carboxylic acid derivative of formula II



II

wherein R₅ is OR₆, NR₆R₇ or SR₆, where R₆ and R₇ are hydrogen, alkyl, or alkyl groups with a hetero atom substituent.

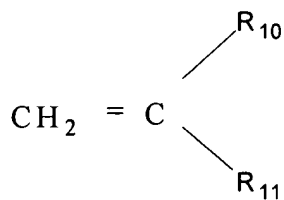
16. (Amended) A method according to claim 9 wherein the second comonomer is a vinyl compound of formula III



III

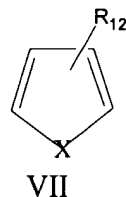
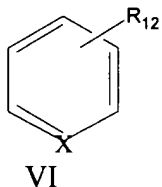
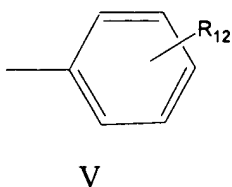
wherein R₈ represents hydrogen or a straight or branched chain alkyl of from 1-4 carbon atoms and R₉ represents hydrogen, a branched chain alkyl radical of from 1-12 carbon atoms or cycloalkyl radical;

and/or the second comonomer is a vinyl compound of formula IV



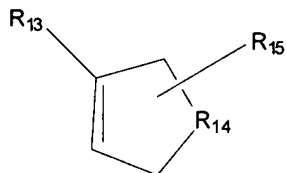
IV

wherein R_{10} is a straight or branched chain alkyl radical of from 1-4 carbons, and R_{11} is given by formula V, VI or VII



wherein R_{12} represents one or more alkyl radicals or one or more of H, Cl, OR, SO_3R_1 , NO_2 and PO_3R_1 , and X is a hetero atom other than carbon where R is a hydrogen atom or alkyl radical having from 1 to 10 carbon atoms (or carboxylated such radical) and R_1 is a metal, quaternary ammonium, phosphonium or sulphonium cation;

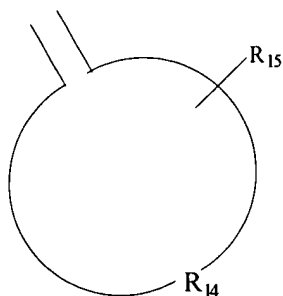
and/or the second comonomer is an olefin of formula VIII



VIII

wherein R_{13} is Cl, SO_3R_1 , alkyl, O-alkyl or O-aryl, R_{14} represents from 4-20 carbon atoms such as to make a cyclic or polycyclic alkane or polyalkenyl compound, and R_{15} is an epoxide or SO_3R_1 reacted with an unsaturated portion of the ring comprising R_{14} ;

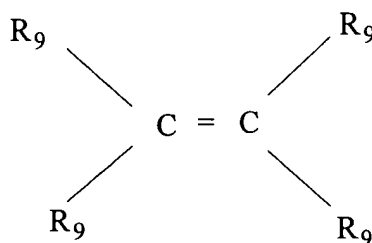
and/or the second comonomer is an exocyclic olefin of formula IX



IX

where R_{14} and R_{15} are as hereinabove defined;

and/or the second comonomer is an internal olefin of formula X,



X

where R_9 is the same or different and as hereinabove defined.

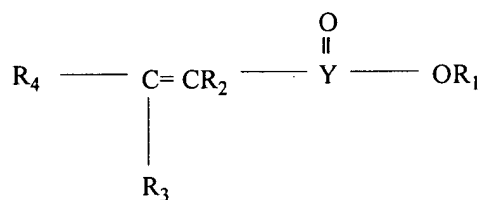
18. (Amended) An agricultural formulation comprising at least one finely divided solid insoluble material and at least one dispersant comprising a water soluble copolymer wherein said copolymer comprises a residue of a first comonomer and a residue of a second comonomer, wherein said first comonomer is an α,β -unsaturated oxyacid or anhydride and said second comonomer is an olefin having at least one polymerizable double bond and wherein at least one of said first comonomer and said second comonomer is substituted, wherein the substituents for said first comonomer are selected from the group consisting of esters, amides, thioesters and other functional groups derived from reaction with nucleophilic reagents and wherein the substituents for the second comonomer are selected from the group consisting of epoxides; sulfonates; esters; amides; and optionally substituted pendent aromatic and heteroaromatic groups wherein said optional substituents are selected from the group consisting of sulfonates, nitrates, phosphates and other substituents derived from reaction with electrophilic

213
amended

reagents; with the proviso that when the second comonomer is sulphonated styrene or sulphonated isobutylene, the first comonomer is substituted, and that when one of the first and second comonomers is substituted with an ester group containing a polyalkyleneoxy moiety, the other of the first and second comonomers must be substituted.

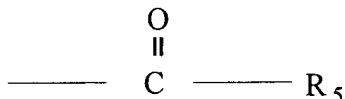
24. (Amended) An agricultural formulation according to claim 18 wherein the olefin is an α -olefin having an alkyl group selected from the group consisting of diisobutylene, isobutylene, n-octene, n-decene, allylglycidylether and vinylisobutylether.

25. (Amended) An agricultural formulation according to claim 18 wherein the first comonomer is of formula I



I

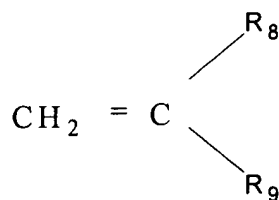
wherein R_1 is a metal, quaternary ammonium, phosphonium or sulphonium cation, R_2 is hydrogen, C_1 to C_4 alkyl or $\text{CH}_2\text{CO}_2\text{H}$, Y is a carbon atom, the group $\text{O}=\text{S}$, or the group POR where R is a hydrogen atom or alkyl radical having from 1 to 10 carbon atoms (or carboxylated such radical), R_3 is hydrogen and R_4 is hydrogen, an alkyl radical or a carboxylic acid derivative of formula II:



II

wherein R_5 is OR_6 , NR_6R_7 or SR_6 , where R_6 and R_7 are hydrogen, alkyl, O-alkyl, or alkyl groups with a hetero atom substituent.

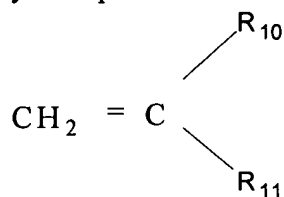
26. (Amended) An agricultural formulation according to claim 18 wherein the second comonomer is of formula III



III

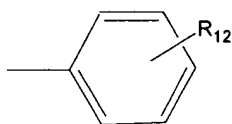
wherein R_8 represents hydrogen or a straight or branched chain alkyl of from 1-4 carbon atoms, R_9 represents hydrogen, a branched chain alkyl radical of from 1-12 carbon atoms, or a cycloalkyl radical;

and/or the second comonomer is a vinyl compound of formula IV

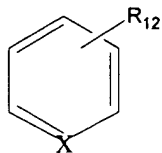


IV

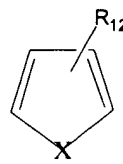
wherein R_{10} is a straight or branched chain alkyl radical of from 1-4 carbons and R_{11} is of formula V, VI or VII



V



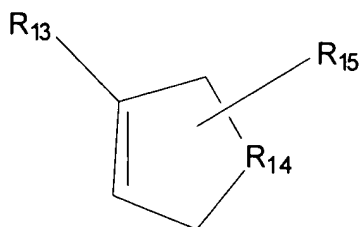
VI



VII

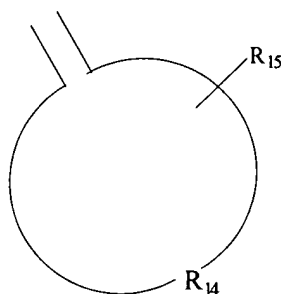
wherein R_{12} represents one or more alkyl radicals or one or more of H, Cl, OR, SO_3R_1 , NO_2 and PO_3R_1 , and X is a hetero atom other than carbon, where R is a hydrogen atom or alkyl radical having from 1 to 10 carbon atoms (or carboxylated such radical) and R_1 is a metal, quaternary ammonium, phosphonium or sulphonium cation;

and/or the second comonomer is an olefin shown by formula VIII,



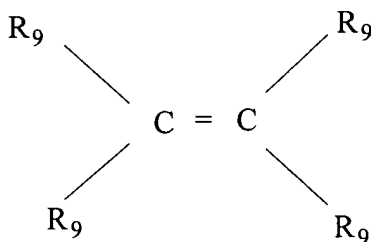
VIII

wherein R_{13} is Cl, SO_3R_1 , alkyl, O-alkyl or O-aryl, R_{14} represents from 4-20 carbon atoms such as to make a cyclic or polycyclic alkane or polyalkenyl compound and R_{15} is an epoxide or SO_3R_1 reacted with an unsaturated portion of the ring comprising R_{14} ; and/or the second comonomer is an exocyclic olefin shown by formula IX



IX

where R_{14} and R_{15} are as hereinabove defined; and/or the second comonomer is an internal olefin of formula X,



X

where R_9 is the same or different and as hereinabove defined.

33. (Amended) An agricultural formulation according to claim 18 wherein the copolymer has a molecular weight in the range of from 1000 to 90000 daltons.


37. (Amended) A method of making an agrochemical formulation comprising the steps of:

(i) combining at least one finely divided solid insoluble material, and at least one dispersant comprising a water soluble copolymer wherein said copolymer comprises a residue of a first comonomer and a residue of a second comonomer, wherein said first comonomer is an α,β -unsaturated oxyacid or anhydride and said second comonomer is an olefin having at least one polymerizable double bond and wherein at least one of said first comonomer and said second comonomer is substituted, wherein the substituents for said first comonomer are selected from the group consisting of esters, amides, thioesters and other functional groups derived from reaction with nucleophilic reagents and wherein the substituents for the second comonomer are selected from the group consisting of epoxides; sulfonates; esters; amides; and optionally substituted pendent aromatic and heteroaromatic groups wherein said optional substituents are selected from the group consisting of sulfonates, nitrates, phosphates and other substituents derived from reaction with electrophilic reagents; with the proviso that when the second comonomer is sulphonated styrene or sulphonated isobutylene, the first comonomer is substituted, and that when one of the first and second comonomers is substituted with an ester group containing a polyalkyleneoxy moiety, the other of the first and second comonomers must be substituted.

38. (Amended) A method according to claim 37 comprising the steps of:

(i) combining at least one finely divided solid insoluble material, and at least one dispersant comprising a water soluble copolymer wherein said copolymer comprises a residue of a first comonomer and a residue of a second comonomer, wherein said first comonomer is an α,β -unsaturated oxyacid or anhydride and said second comonomer is an olefin having at least one polymerizable double bond and wherein at least one of said first comonomer and said second comonomer is substituted, wherein the substituents for said first comonomer are selected from the group consisting of esters, amides, thioesters and other functional groups

derived from reaction with nucleophilic reagents and wherein the substituents for the second comonomer are selected from the group consisting of epoxides; sulfonates; esters; amides; and optionally substituted pendent aromatic and heteroaromatic groups wherein said optional substituents are selected from the group consisting of sulfonates, nitrates, phosphates and other substituents derived from reaction with electrophilic reagents; with the proviso that when the second comonomer is sulphonated styrene or sulphonated isobutylene, the first comonomer is substituted, and that when one of the first and second comonomers is substituted with an ester group containing a polyalkyleneoxy moiety, the other of the first and second comonomers must be substituted.

 (ii) milling said combination to a particle size range in order to obtain a stable, readily-suspendible aqueous dispersion; and

(iii) stabilising said aqueous dispersion to obtain an SC formulation suitable for dilution in water for agricultural use.


39. (Amended) A method according to claim 37 comprising the steps of:

(i) combining at least one finely divided solid insoluble material, with at least one dispersant comprising a water soluble copolymer wherein said copolymer comprises a residue of a first comonomer and a residue of a second comonomer, wherein said first comonomer is an α,β -unsaturated oxyacid or anhydride and said second comonomer is an olefin having at least one polymerizable double bond and wherein at least one of said first comonomer and said second comonomer is substituted, wherein the substituents for said first comonomer are selected from the group consisting of esters, amides, thioesters and other functional groups derived from reaction with nucleophilic reagents and wherein the substituents for the second comonomer are selected from the group consisting of epoxides; sulfonates; esters; amides; and optionally substituted pendent aromatic and heteroaromatic groups wherein said optional substituents are selected from the group consisting of sulfonates, nitrates, phosphates and other substituents derived from reaction with electrophilic reagents; with the proviso that when the

second comonomer is sulphonated styrene or sulphonated isobutylene, the first comonomer is substituted, and that when one of the first and second comonomers is substituted with an ester group containing a polyalkyleneoxy moiety, the other of the first and second comonomers must be substituted; and

(ii) milling said combination to a desired particle size to obtain a homogeneous wettable powder (WP) formulation.

40. (Amended) A method according to claim 37 comprising the steps of:

 (i) combining at least one finely divided solid insoluble material suitable for agricultural use with at least one dispersant comprising a water soluble copolymer wherein said copolymer comprises a residue of a first comonomer and a residue of a second comonomer, wherein said first comonomer is an α,β -unsaturated oxyacid or anhydride and said second comonomer is an olefin having at least one polymerizable double bond and wherein at least one of said first comonomer and said second comonomer is substituted, wherein the substituents for said first comonomer are selected from the group consisting of esters, amides, thioesters and other functional groups derived from reaction with nucleophilic reagents and wherein the substituents for the second comonomer are selected from the group consisting of epoxides; sulfonates; esters; amides; and optionally substituted pendent aromatic and heteroaromatic groups wherein said optional substituents are selected from the group consisting of sulfonates, nitrates, phosphates and other substituents derived from reaction with electrophilic reagents; with the proviso that when the second comonomer is sulphonated styrene or sulphonated isobutylene, the first comonomer is substituted, and that when one of the first and second comonomers is substituted with an ester group containing a polyalkyleneoxy moiety, the other of the first and second comonomers must be substituted; and

(ii) blending said combination to obtain a homogeneous wettable powder (WP) formulation.

41. (Amended) A method according to claim 37 comprising the steps of:

(i) combining at least one finely divided solid insoluble material suitable for agricultural use with at least one dispersant comprising a water soluble copolymer wherein said copolymer comprises a residue of a first comonomer and a residue of a second comonomer, wherein said first comonomer is an α,β -unsaturated oxyacid or anhydride and said second comonomer is an olefin having at least one polymerizable double bond and wherein at least one of said first comonomer and said second comonomer is substituted, wherein the substituents for said first comonomer are selected from the group consisting of esters, amides, thioesters and other functional groups derived from reaction with nucleophilic reagents and wherein the substituents for the second comonomer are selected from the group consisting of epoxides; sulfonates; esters; amides; and optionally substituted pendent aromatic and heteroaromatic groups wherein said optional substituents are selected from the group consisting of sulfonates, nitrates, phosphates and other substituents derived from reaction with electrophilic reagents; with the proviso that when the second comonomer is sulphonated styrene or sulphonated isobutylene, the first comonomer is substituted, and that when one of the first and second comonomers is substituted with an ester group containing a polyalkyleneoxy moiety, the other of the first and second comonomers must be substituted;

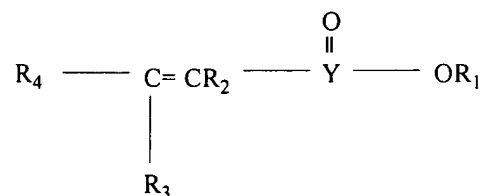
(ii) agglomerating said combination to form discrete granular materials; and

(iii) drying said granular materials to obtain a water dispersible granule WG

formulation.

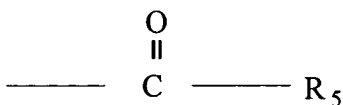
46. (Amended) A method according to claim 37 wherein the olefin is an α -olefin having an alkyl group selected from the group consisting of diisobutylene, isobutylene, n-octene, n-decene, allylglycidylether and vinylisobutylether.

47. (Amended) A method according to claim 37 wherein the first comonomer is of formula I



I

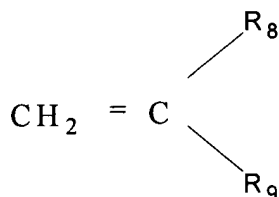
wherein R₁ is a metal, quaternary ammonium, phosphonium or sulphonium cation, R₂ is hydrogen, C₁ to C₄ alkyl or CH₂CO₂H, Y is a carbon atom, the group O=S, or the group POR where R is a hydrogen atom or alkyl radical having from 1 to 10 carbon atoms (or carboxylated such radical), R₃ is hydrogen and R₄ is hydrogen, an alkyl radical or a carboxylic acid derivative of formula II



II

wherein R₅ is OR₆, NR₆R₇ or SR₆, where R₆ and R₇ are hydrogen, alkyl, O-alkyl, or alkyl groups with a hetero atom substituent.

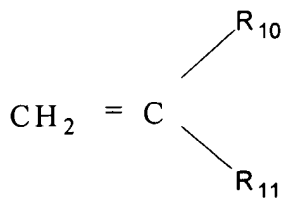
48. (Amended) A method according to claim 37 wherein the second comonomer is of formula III



III

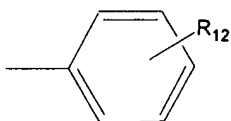
wherein R₈ represents hydrogen or a straight or branched chain alkyl of from 1-4 carbon atoms, R₉ represents hydrogen, a branched chain alkyl radical of from 1-12 carbon atoms, or a cycloalkyl radical;

and/or the second comonomer is a vinyl compound of formula IV

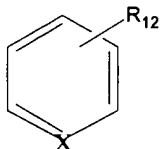


IV

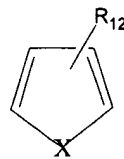
wherein R_{10} is a straight or branched chain alkyl radical of from 1-4 carbons and R_{11} is of formula V, VI or VII



V



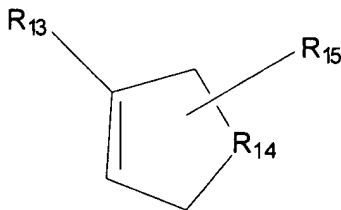
VI



VII

wherein R_{12} represents one or more alkyl radicals or one or more of H, Cl, OR, SO_3R_1 , NO_2 and PO_3R_1 , and X is a hetero atom other than carbon, where R is a hydrogen atom or alkyl radical having from 1 to 10 carbon atoms (or carboxylated such radical) and R_1 is a metal, quaternary ammonium, phosphonium or sulphonium cation;

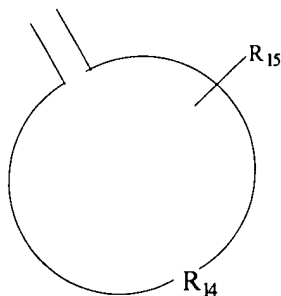
and/or the second comonomer is an olefin shown by formula VIII



VIII

wherein R_{13} is Cl, SO_3R_1 , alkyl, O-alkyl or O-aryl, R_{14} represents from 4-20 carbon atoms such as to make a cyclic or polycyclic alkane or polyalkenyl compound and R_{15} is an epoxide or SO_3R_1 reacted with an unsaturated portion of the ring comprising R_{14} ;

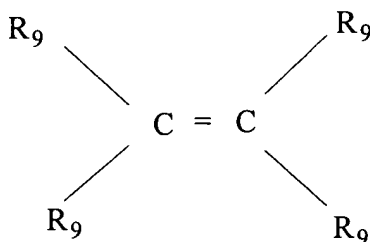
and/or the second comonomer is an exocyclic olefin shown by formula IX



IX

where R₁₄ and R₁₅ are as hereinabove defined;

and/or the second comonomer is an internal olefin of formula X,



X

where R₉ is the same or different and as hereinabove defined.

55. (Amended) A method according to claim 37 wherein the copolymer has a molecular weight in the range of from 1000 to 90000 daltons.

57. (Amended) An agricultural formulation produced by the method of any one of claims 37 to 41.

REMARKS

Reconsideration of the present application in view of the above amendments and the following remarks is respectfully requested. Claims 1-65 are pending. Claims 3-8 and 58-65 have been withdrawn from consideration. Claims 1, 9, 15, 16, 18, 24-26, 33, 37-41, 46-48, 55, and 57 have been amended. Claims 1 and 2 stand allowed.